



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/966,873	09/28/2001	Daniel Max Warren	328 P 623	4946

7590

07/25/2005

Anthony G Sitko
Marshall Gerstein & Borun
6300 Sears Tower 233 South Wacker Drive
Chicago, IL 60606-6357

EXAMINER

PENDLETON, BRIAN T

ART UNIT	PAPER NUMBER
----------	--------------

2644

DATE MAILED: 07/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/966,873

Applicant(s)

WARREN ET AL.

Examiner

Brian T. Pendleton

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/1/05.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 1,2,12,13,15,16,24,25,30 and 31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-11,14,17-23 and 26-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Claims 1, 2, 12, 13, 15, 16, 24, 25, 30, and 31 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 4/1/05. In addition, Applicant is correct to presume that claim 12 falls under group I and claim 13 falls under group II.

Applicant's election with traverse of group III in the reply filed on 4/1/05 is acknowledged. The traversal is on the ground(s) that there is no serious burden to the Examiner to search the different groups because all groups need to be searched in order to properly examine the independent claims. This is not found persuasive because Examiner determines the extent of burden. It is the Examiner's contention that searching for the methods of determining the sensitivities of microphones and determining the arrangement of microphones in an array place an unreasonable burden on the Examiner while also having to search for the microphone array apparatus and its associated method. Furthermore, the fact that the groups fall into the same class does not preclude the fact that the search is still unreasonable.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2644

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 3, 4, 5, 17, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Ehrlich, US Patent 3,860,928. Ehrlich disclose a system in figure 16 comprising first, second and third microphones in array 202, amplifier 216G (means for converting the electrical signal of each of the microphones into a single multi-order directional signal), amplifier 216D (means for converting the electrical signal of two of the microphones into a signal first order directional signal), and amplifier 218B (means for summing the multi-order directional signal and the first order directional signal). As to claim 5, there exists a gate for turning on and off the microphone signals which reads on means for adjusting the relative gain of the first, second and third microphones.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 4, 7-11, 14, 17, 18, 21-23 and 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bradley et al, US Patent 5,463,694 in view of Boone et al, US Patent 6,741,713. Bradley discloses a gradient directional microphone comprising microphones 101, 103, 105; gradient signal processors 201, 203, and 229 for producing a multi-order directional signal 131, and first-order directional signals 207 and 209, respectively. Bradley does not disclose means for summing the multi-order directional signal and the first order directional

Art Unit: 2644

signal. Boone discloses a directional hearing aid device comprising microphones m1, m2, and m3; gradient signal processors GP1 and GP2; low pass filter LF; high pass filter HF and adder S4, said adder acting as summing means for summing directional microphone signals. The directional microphone signals U1, U2 are both output and added. It would have been obvious to one of ordinary skill in the art at the time of invention to modify Bradley to sum its multi-order directional signal 131 and first-order directional signal 208 for the purpose of creating a directional signal with a higher directivity than the directional signal 131. Claims 3, 4, 17, 18. Boone discloses a low pass filter and a high pass filter which are used to flatten the frequency response of the directional microphone. It was a well known fact in the art of directional microphones that first order microphones exhibited a better frequency response at lower frequencies than second order microphones and that the higher the order of the microphone, the better the frequency response at higher frequencies. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify the combination of Bradley and Boone to have the first order microphone signal coupled to the low pass filter LF and the second order microphone signal coupled to the high pass filter for the purpose of flattening out the frequency response of the microphone system. Claims 7-9, 14, 21-23, and 26-29 are met. Regarding claims 10 and 11, Bradley discloses that the first-order directional signals are of cardioid patterns and could be of any other first order gradient patterns.

Claims 5, 6, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bradley in view of Boone as applied to claims 3 and 17 above, and further in view of Zoels, US Patent 6,385,323. The combination of Bradley and Boone does not disclose means for adjusting the relative gain of the microphones. Zoels discloses a hearing aid with automatic microphone

Art Unit: 2644

balancing. The object of the apparatus of Zoels was to eliminate the differences in sensitivity of the microphones in order to improve the directional response of the microphone. The apparatus comprises microphones 1a, 1b, variable amplifiers 2a, 2b, and analysis and control units 10 and 11. As taught in column 1 lines 20-22, in order to achieve a directional microphone characteristic, the microphones must have identical sensitivities. Variable amplifiers 2a and 2b are manipulated to ensure an equal response from the microphones. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the combination of Bradley and Boone to include the variable amplifiers, as taught by Zoels, for the purpose of improving the performance of the directional microphone. Claims 5 and 19 are met. As to claims 6 and 20, it was obvious to make the magnitudes from the microphones equal for the purpose of directive microphone circuits, otherwise the directional microphone would not function properly.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian T. Pendleton whose telephone number is (571) 272-7527. The examiner can normally be reached on M-F 7-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 272-7848. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2644

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian T. Pendleton
Examiner
Art Unit 2644



btp